

From: [Schade, Pete](#)
To: [Makus, Erik](#)
Cc: [Lisa Kusnierz](#)
Subject: RE: Storm water discussions
Date: 02/11/2011 04:09 PM

I sent a copy to Lisa in prep for the meeting.

Take with a salt grain, Lisa.

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Pete Schade
(406) 444-6771
Senior TMDL Planner
Montana Department of Environmental Quality

From: Makus, Erik
Sent: Friday, February 11, 2011 4:02 PM
To: Schade, Pete
Subject: RE: Storm water discussions

Sure – I'm free M, T, and Th of next week all day. Just pick a time and we can meet.

I forget if I started putting together any results in the report, but if so I would ignore that part for now and just focus on how I set it up. Also, I'd prefer not to have anyone outside of DEQ get a copy of that yet – it is a rough draft of a rough draft.

Erik

From: Schade, Pete
Sent: Friday, February 11, 2011 3:59 PM
To: Makus, Erik
Subject: RE: Storm water discussions

Yes – I, too, am a little concerned about treating e.coli adequately.

I'm going through your report in detail – perhaps just the two of us should get together next week (before the 22nd) so I can make sure I understand things correctly.

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Pete Schade
(406) 444-6771
Senior TMDL Planner
Montana Department of Environmental Quality

From: Makus, Erik
Sent: Friday, February 11, 2011 3:51 PM
To: Schade, Pete
Subject: RE: Storm water discussions

Pete,

This meeting will be interesting. I can definitely see why HDR and the City are worried about it –

there are a few issues of concern with the existing model setup from HDR.

This model isn't going to be extremely detailed, and there will be big assumptions made setting it up. However, like you said, we need to move forward and if our goal is to estimate the MS4 loadings from the City of Bozeman, then I think this can accomplish this to a general degree.

Also, like you said, what they are using the model for and what we are using it for are entirely separate things. We don't require nearly as much routing detail (which is what they seem to be worried about), as we are not concerned with specific hydraulic routing – whether it takes forty minutes or two hours for the runoff to enter the creek, and whether someone's backyard floods with six inches of water or two inches of water, are points we can afford to look over (we're assuming conservation of pollutant mass from source to creek). So the existing routing of sub-basins is probably good enough for us.

Parameterization will be the real discussion. I still think bacteria (Ecoli) is going to be very hard to model with this system. Unlike sed and nutrients, bacteria can gain or lose mass based on time held, temperature, pH of runoff, etc – all items that we don't have the capability of modeling with our existing SWMM setup.

I'll have some stuff prepared for our internal meeting the 22nd so we can be ready for the one with the City.

Erik

From: Schade, Pete
Sent: Friday, February 11, 2011 3:10 PM
To: Dustin Johnson
Cc: Debbie Arkell; Bob Murray; Richard Hixson; McInnis, Amanda; Makus, Erik
Subject: RE: Storm water discussions

I understand the concern, Dustin.

For TMDL development, we are required to assess stormwater and develop stormwater wasteload allocations for MS4-permitted municipalities.

We felt the best way to go about this was to build on work already conducted by the City. I concur that the framework model HDR developed for the city stormwater plan is rather rudimentary and needs additional work, however it does provide a modeling base to work with, and I thought it would be most efficient to work off that base then create a new modeling framework. The SWMM model used is an industry standard and fits the need, however as you understand, a model is only so good as its inputs and assumptions.

This being said, we must move forward with an effort to characterize and estimate stormwater loading from within MS4 boundaries for required TMDL wasteload allocations. Erik Makus, a member of our modeling staff, has been reapplying the SWMM model generated by HDR (with some help from HDR modelers) and has built upon the existing framework, identifying components of the model that would need additional information for it to be applicable to TMDL load estimations. Keep in mind that the City's intended use of the model, either for stormwater planning, hydraulic assessments, flood control, etc is probably much more expansive than how DEQ would use it for TMDL development.

Of particular importance will be the assumptions made in the model regarding things like infiltration, impervious areas, land use classifications, appropriate EMC values, existing and future SW control measures or BMPs, etc. And in lieu of specific local data, we will have to use literature values or other appropriate methods to establish loading estimates. I welcome some open discussion about how best to apply these assumptions for use in the analysis – we'll prepare these points for discussion on the 24th.

That's where we are at this point – we've rebuilt HDR's skeleton SWMM model, verified a number of model set-up parameters, and can now begin to work with the City on establishing appropriate assumptions for additional parameter inputs.

Of course, how this TMDL process translates to any potential MS4 permitting should certainly be a concern, and is another something we'll have to talk through as well...

I look forward to getting this figured.

Pete

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From: Dustin Johnson [mailto:DJohnson@BOZEMAN.NET]
Sent: Friday, February 11, 2011 1:51 PM
To: Schade, Pete
Cc: Debbie Arkell; Bob Murray; Richard Hixson; McInnis, Amanda
Subject: Storm water discussions

Pete-

The City has been looking at the work that's been done with the HDR model developed for the City of Bozeman's storm water plan. We have some concerns with taking that limited model with very limited data and using it as a tool for possible TMDL development in the Lower Gallatin watershed. In speaking with HDR they have voiced similar concerns.

The original intent of the model was to simply establish a pilot project that could be built up in the future. Unfortunately, the City hasn't had the time or the resources to take that original model to produce anything of real use. City staff and HDR both feel that in order to get anything useful out of the model, more of the system must be mapped out and incorporated into it.

We can discuss these issues when we get together on the 24th, we just wanted to give you a heads up that we had some concerns going into this.

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